

CLAIMS

What is claimed is:

- 1 1. A method comprising the steps of:
 - 2 a) serially providing a command sequence containing a first
 - 3 channel identifier to a first device of a plurality of daisy chained devices; and
 - 4 b) modifying the first channel identifier to generate a second
 - 5 channel identifier for transmission to the next device in the daisy chain.
- 1 2. The method of claim 1 wherein the command sequence includes a
- 2 command word, an address word, and at least one data word.
- 1 3. The method of claim 1 further comprising the step of:
 - 2 c) executing a command of the command sequence on any device
 - 3 receiving the command, if that device has a received channel identifier
 - 4 matching a pre-determined value, wherein each of the plurality of devices
 - 5 uses the same pre-determined value for comparison.
- 1 4. The method of claim 3 wherein the pre-determined value is a selected
- 2 member of the set {x0h, xFh}.
- 1 5. The method of claim 1 wherein step b) further comprises the step of
- 2 incrementing the first channel identifier to form the second channel
- 3 identifier.

1 6. The method of claim 1 wherein step b) further comprises the step of
2 decrementing the first channel identifier to form the second channel
3 identifier.

1 7. The method of claim 1 wherein the first channel identifier is provided
2 in least significant bit order within the command sequence.

1 8. The method of claim 1 further comprising the step of:
2 c) executing a command of the command sequence received by
3 each device on that device independently of its associated received channel
4 identifier, if a broadcast option is selected.

1 9. A serial device apparatus comprising:
2 a serial input port for receiving a first command sequence having a
3 first channel identifier and a remaining command sequence;
4 a daisy chain output port; and
5 command sequence processing logic for modifying the first channel
6 identifier to form a second channel identifier, wherein the command
7 processing logic provides the second channel identifier and the remaining
8 command sequence to the daisy chain output port.

1 10. The apparatus of claim 9 wherein the first channel identifier is
2 incremented to form the second channel identifier.

1 11. The apparatus of claim 9 wherein the first channel identifier is
2 decremented to form the second channel identifier.

1 12. The apparatus of claim 9 wherein the first channel identifier is stored
2 in least significant bit order within the command sequence.

1 13. The apparatus of claim 9 further comprising:
2 command execution logic for executing the command if the first
3 channel identifier matches a pre-determined value.

1 14. The apparatus of claim 13 wherein the pre-determined value is a
2 selected member of the set {x0h, xFh}.

1 15. An apparatus comprising:
2 a bus master providing an initial command sequence having an initial
3 channel identifier;

4 a plurality of serial devices, each device comprising:
5 a serial input port for receiving a first command sequence
6 having a first channel identifier and a remaining command sequence;
7 a daisy chain output port; and
8 command sequence processing logic for modifying the first
9 channel identifier to form a second channel identifier, wherein the command
10 processing logic provides the second channel identifier and the remaining
11 command sequence to the daisy chain output port;

12 a bus coupling the serial devices in one of a normal configuration and
13 a daisy chain configuration.

1 16. The apparatus of claim 15 wherein the bus master provides the initial
2 command sequence with the channel identifier selected from the set of {x0h,
3 xFh} when the devices are coupled in the normal configuration, wherein
4 each of the plurality of devices receives the initial command sequence
5 substantially simultaneously.

1 17. The apparatus of claim 15 wherein when coupled in daisy chain
2 configuration, the bus master provides the initial command sequence to a
3 first serial device of the plurality of devices, wherein each subsequent device
4 receives a modified command sequence including the second channel
5 identifier and the remaining command sequence provided by a preceding
6 serial device, wherein the plurality of second channel identifiers is distinct.

1 18. The apparatus of claim 15 wherein each serial device further comprises
2 command execution logic, wherein the command execution logic executes
3 the command sequence received by that device if the associated channel
4 identifier matches a pre-determined value shared by the plurality of serial
5 devices.

1 19. The apparatus of claim 18 wherein the pre-determined value is a
2 selected member of the set {x0h, xFh}.

1 20. The apparatus of claim 15 wherein the bus master provides the initial
2 channel identifier in least significant bit order within the initial command
3 sequence, wherein the initial command sequence is provided in most
4 significant bit order.